Agilent IO Libraries Installation and Configuration Guide for Windows

Agilent Technologies

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Introducing the IO Libraries

Introducing the IO Libraries

This *Agilent IO Libraries Installation Guide for Windows* shows how to install and configure Agilent IO Libraries on Microsoft Windows 95, Windows 98, Windows NT 4.0, and Windows 2000.

NOTE

This guide does not include instructions to install IO Libraries on HP-UX systems. See the *I/O Libraries Installation and Configuration Guide for HP-UX* for HP-UX system installation.

Unless otherwise indicated, Windows NT refers to Windows NT 4.0.

This chapter shows how to use this guide and provides an overview of the Agilent IO Libraries.

- *Chapter 2 - Installing the IO Libraries* provides an overview of the Agilent IO Libraries and shows how to install, update, and maintain the libraries on Windows platforms.
- *Chapter 3 - Configuring the IO Libraries* gives guidelines to use I/O utilities such as IO Config and VISA Assistant to configure the Agilent IO Libraries

Using This Guide

This guide shows how to install and configure the Agilent IO Libraries software.

What's in This Guide?

The steps described in this guide assume:

- The software will be installed on a Windows-based PC instrument system. The PC can be an external or an embedded PC.
- You have already installed and configured the hardware for your system and have installed any required application programs (C/C++, Agilent VEE, etc.).
- For an overview of the Agilent IO Libraries, see C*hapter 1 - Introducing the IO Libraries*. To install the Agilent IO Libraries, see *Chapter 2 - Installing the IO Libraries*. To use IO utilities (such as IO Config) to configure the IO Libraries, see *Chapter 3 - Configuring the IO Libraries*.

If You Need Help

- In the USA and Canada, you can reach Agilent Technologies at these telephone numbers:

  USA: 1-800-452-4844
  Canada: 1-877-894-4414

- Outside the USA and Canada, contact your country's Agilent support organization. A list of contact information for other countries is available on the Agilent web site:

  `http://www.agilent.com/find/assist`

IO Libraries Overview

The Agilent IO Libraries consists of two libraries: *Agilent Virtual Instrument Software Architecture (VISA)* and *Agilent Standard Instrument Control Library (SICL).*

VISA and SICL Overview

- Agilent Virtual Instrument Software Architecture (VISA) is an IO library designed according to the VXI*plug&play* System Alliance that allows software developed from different vendors to run on the same system.
- Use VISA if you want to use VXI*plug&play* instrument drivers in your applications, or if you want the I/O applications or instrument drivers that you develop to be compliant with VXI*plug&play* standards. If you are using new instruments or are developing new I/O applications or instrument drivers, we recommend you use Agilent VISA.
- Agilent Standard Instrument Control Library (SICL) is an I/O library developed by Hewlett-Packard and Agilent that is portable across many I/O interfaces and systems.
- You can use Agilent SICL if you have been using SICL and want to remain compatible with software currently implemented in SICL.

NOTE

Since VISA and SICL are different libraries, using VISA functions and SICL functions in the same I/O application is not supported.

Agilent VISA Description

Agilent Virtual Instrument Software Architecture (VISA) is an I/O library that can be used to develop I/O applications and instrument drivers that comply with the VXI*plug&play* standards. Applications and instrument drivers developed with VISA can execute on VXI*plug&play* system frameworks that have the VISA I/O layer. Therefore, software from different vendors can be used together on the same system.

VISA Support

The 32-bit version of VISA is supported on this version of the Agilent IO Libraries for Windows 95, Windows 98, Windows NT, and Windows 2000. Support for the 16-bit version of VISA was removed in version H.01.00. However, versions through G.02.02 support 16-bit VISA. C, C++, and Visual BASIC are supported on all these Windows versions.

VISA Users

VISA has two specific types of users. The first type is the instrumentation end user who wants to use VXI*plug&play* instrument drivers in his or her applications. The second type of user is the instrument driver or I/O application developer who wants to be compliant with VXI*plug&play* standards.

Software development using VISA is intended for instrument I/O and C/C++ or Visual BASIC programmers who are familiar with Windows 95, Windows 98, Windows 2000, or Windows NT. To perform VISA installation and configuration on Windows NT, you must have system administration privileges on the Windows NT system.

VISA Documentation

This table shows associated documentation you can use when programming with Agilent VISA.

Agilent VISA Documentation

Document	Description
Agilent VISA User's Guide	Shows how to use Agilent VISA and provides the VISA language reference.
VISA Online Help	Information is provided in the form of Windows Help.
VISA Example Programs	Example programs are provided online to help you develop VISA applications.
VXI*plug&play* System Alliance *VISA Library Specification 4.3*	Specifications for VISA.
IEEE Standard Codes, Formats, Protocols, and Common Commands	ANSI/IEEE Standard 488.2-1992.
VXIbus Consortium specifications (when using VISA over LAN)	*TCP/IP Instrument Protocol Specification* - VXI-11, Rev. 1.0 *TCP/IP-VXIbus Interface Specification* - VXI-11.1, Rev. 1.0 *TCP/IP-IEEE 488.1 Interface Specification* - VXI-11.2, Rev. 1.0 *TCP/IP-IEEE 488.2 Instrument Interface Specification* - VXI-11.3, Rev. 1.0

Agilent SICL Description

Agilent Standard Instrument Control Library (SICL) is an I/O library developed by Hewlett-Packard and Agilent that is portable across many I/O interfaces and systems. I/O applications using this library can be ported at the source code level from one system to another with few (or no) changes.

SICL Support

The 32-bit version of SICL is supported on this version of the Agilent IO Libraries for Windows 95, Windows 98, Windows NT, and Windows 2000. Support for the 16-bit version of SICL was removed in version H.01.00. However, versions through G.02.02 support 16-bit SICL. C, C++, and Visual BASIC are supported on all these Windows versions.

SICL Users

SICL is intended for instrument I/O and C/C++ or Visual BASIC programmers who are familiar with Windows 95, Windows 98, Windows 2000, or Windows NT. To perform SICL installation and configuration on Windows NT, you must have system administration privileges on the Windows NT system.

SICL Documentation

This table shows associated documentation you can use when programming with Agilent SICL.

Agilent SICL Documentation

Document	Description
Agilent SICL User's Guide for Windows	Shows how to use Agilent SICL and provides the SICL language reference.
SICL Online Help	Information is provided in the form of Windows Help.
SICL Example Programs	Example programs are provided online to help you develop SICL applications.
VXIbus Consortium specifications (when using VISA over LAN)	*TCP/IP Instrument Protocol Specification* - VXI-11, Rev. 1.0 *TCP/IP-VXIbus Interface Specification* - VXI-11.1, Rev. 1.0 *TCP/IP-IEEE 488.1 Interface Specification* - VXI-11.2, Rev. 1.0 *TCP/IP-IEEE 488.2 Instrument Interface Specification* - VXI-11.3, Rev. 1.0

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Installing the IO Libraries

Installing the IO Libraries

This chapter shows how to install the libraries on Microsoft Windows 95, Windows 98, Windows NT, and Windows 2000. Chapter contents are:

- Getting Started
- Installing New IO Libraries
- Upgrading Existing IO Libraries
- Maintaining Existing IO Libraries

See the following table to select the applicable installation section for your PC configuration. Note that IO Library version numbers skip from H to J. There are no I versions of the IO Libraries..

Version Installed	Action	See*
None	Install a new version of the IO Libraries	*Installing New IO Libraries*
H.01.03 or earlier	Upgrade existing IO Libraries to the latest version	*Upgrading Existing IO Libraries*
J.01.00 or later	Modify, repair, or remove the same version of existing IO Libraries	*Maintaining Existing IO Libraries*

* See "Getting Started" first.

Getting Started

This section gives guidelines to get started installing the Agilent IO Libraries, including system requirements and supported interfaces. You should verify that your system meets the minimum requirements shown and the system interfaces are supported before you install the Agilent IO Libraries.

NOTE

It is **highly** recommended you install the hardware interface card(s) in your PC before you install the IO Libraries. See the applicable hardware interface card(s) installation guide for details.

Before you can use an interface with SICL or VISA, you **must** first configure the interface with the IO Config utility. See *Chapter 3 - Configuring the IO Libraries* for details on IO Config.

Do **not** attempt to manually edit the Windows registry to configure your interfaces for use with SICL or VISA.

System Requirements

The following table summarizes **minimum** hardware and software requirements to install the IO Libraries. Adding additional RAM may improve overall system performance.

Item	Minimum Requirements
Hardware Requirements	
PC Operation/ Memory	100 MHz operation and 16 MB RAM.
PC Plug-in Slots	EISA I/O slots for GPIB, RS-232, or GPIO interface or for a LAN adapter. PCI slots for GPIB (PCI) and IEEE 1394 interfaces.[1]
Hard Drive Space	At least 40 MB for VISA and SICL installation.

Item	Minimum Requirements
Software Requirements	
Operating System	Microsoft Windows 95, Windows 98, Windows 2000, or Windows 2000.
Language Tools (one of the listed tools)	- Microsoft 32-bit Visual C++ Version 2.0 or later or equivalent Microsoft 32-bit C/C++ tools - Borland C++ Version 4.0 or later - Microsoft 32-bit Visual Basic Version 4.0 or later

[1] If you use an RS-232 interface with VISA and SICL, see the RS-232 documentation for your Windows product, since VISA and SICL use the RS-232 capabilities built into Windows.

Supported Interfaces

These I/O interfaces are supported for 32-bit applications (16-bit applications are not supported):

Interface	Supported on:
Agilent E8491 IEEE-1394 PC Link to VXI	Windows 95 Windows NT 4.0 Windows 98 Windows 2000 SICL and VISA
Agilent E985x Embedded VXI Controller (VXI and GPIB)	Windows NT 4.0 SICL and VISA
Agilent 82341C GPIB Card (ISA) Agilent 82341D GPIB Card (ISA) Agilent 82350 GPIB Card (PCI)	Windows 95 Windows NT 4.0 (single CPU only) Windows 98 Windows 2000 (single CPU only) SICL and VISA
Agilent E2075 GPIO Card (ISA)	Windows 95 Windows 98 Windows NT 4.0 (single CPU only) Windows 2000 (single CPU only) SICL only

Interface	Supported on:
Built-in RS-232 Interface	Windows 95 Windows 98 Windows NT 4.0 Windows 2000 SICL and VISA
Built-in LAN Interface, client and server	Windows 95 Windows 98 Windows NT 4.0 Windows 2000 SICL and VISA
VISA GPIB-VXI functionality (VXI communications from a GPIB interface)	Windows 95 Windows 98 Windows NT 4.0 Windows 2000 VISA only Support for command modules from many vendors

Installing New IO Libraries

Use these steps to install a **new** version of the IO Libraries on your PC.

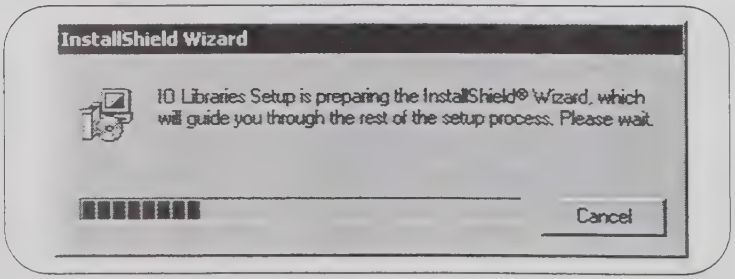
NOTE

The steps in this section assume **no** version of the IO Libraries is installed on your PC.

- If you have a version of the IO Libraries already installed on your PC, see *Upgrading Existing IO Libraries*.
- If you want to modify, repair, or remove **the same version** of an existing IO Library, see *Maintaining Existing IO Libraries*.

Steps to Install the IO Libraries

1. Turn the PC ON and close all open applications.
2. As required, install application software such as C/C++, VEE, etc. on your PC.
3. Insert the *IO Libraries for Instrument Control* CD into the CD-ROM drive and wait a few seconds for the application to run. The installer should automatically start when the CD is inserted. If not, select `Start | Run` and type *<drive>*`:setup.exe` where *drive* is your CD-ROM drive letter.
4. The InstallShield® Wizard appears to begin the IO Libraries installation.


InstallShield Wizard
IO Libraries Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.
Cancel

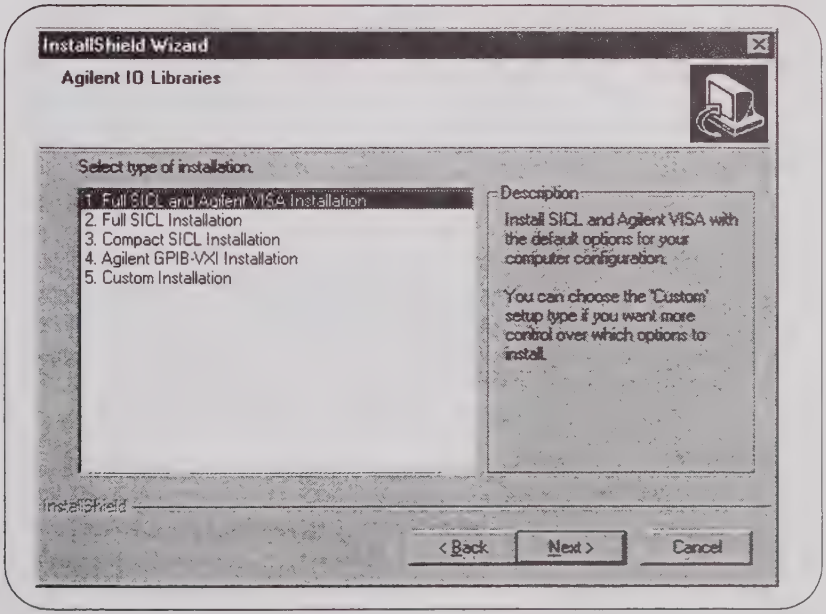
5. When the title screen appears, click Next > to go to the **License Agreement** screen and then click Yes to accept the license terms and to display the **Readme Information** screen.

NOTE

The **Readme** screen contains important information on the IO Libraries. We suggest you read this information before continuing with IO Libraries installation.

6. Click Next > to display the **SICL installation directory** screen. By default, SICL is installed in C:\Program Files\Agilient\IO Libraries. Click Next > if you accept the default setting, or set the directory you want and then click Next > to display the **VISA installation directory** screen.

7. By default, VISA is installed in C:\Program Files\VISA. Click Next > if you accept the default setting, or set the directory you want and then click Next > to display the **Select Type of Installation** screen.


InstallShield Wizard
Agilent IO Libraries
Select type of installation.
1. Full SICL and Agilent VISA Installation
2. Full SICL Installation
3. Compact SICL Installation
4. Agilent GPIB-VXI Installation
5. Custom Installation
Description
Install SICL and Agilent VISA with the default options for your computer configuration.
You can choose the 'Custom' setup type if you want more control over which options to install.
InstallShield
< Back
Next >
Cancel

8. Use this table for guidelines to select the type of installation for your application. Then, click Next > to install the option.

Option	Description
1. Full SICL and Agilent VISA Installation	Installs SICL and Agilent VISA with the default options for your computer configuration. This option allows development and runtime capabilities using SICL and Agilent VISA. The option also allows you to select Agilent E8491 IEEE 1394 to VXI support. If another vendor's VISA is installed, installing this option will overwrite the other vendor's VISA.
2. Full SICL Installation	Installs SICL (but not Agilent VISA) with the default options for your computer configuration. This option allows development and runtime capabilities using SICL. The option also allows you to select Agilent E8491 IEEE 1394 to VXI support. If another vendor's VISA is installed, installing this option will not overwrite the other vendor's VISA.
3. Compact SICL Installation	Installs SICL (but not Agilent VISA) with the default options for your computer configuration. This option allows runtime capabilities ONLY (no development capabilities) using SICL for Serial (RS-232) and LAN client interfaces. If another vendor's VISA is installed, installing this option will not overwrite the other vendor's VISA.
4. Agilent VXI-GPIB Installation	Use this option if your system includes a Hewlett-Packard or Agilent VXI Command Module (such as an E1406, etc.) and another vendor's VISA. This option provides VXI-GPIB support for VXI Command Modules on another vendor's VISA. SICL and Agilent VISA are NOT installed.
5. Custom Installation	Allows you to install individually selected components of the IO Libraries, including SICL, including SICL, VISA, E8491, I-SCPI, and GPIB-VXI Support components. I-SCPI is supplied for backward compatibility but is NOT recommended for new applications.

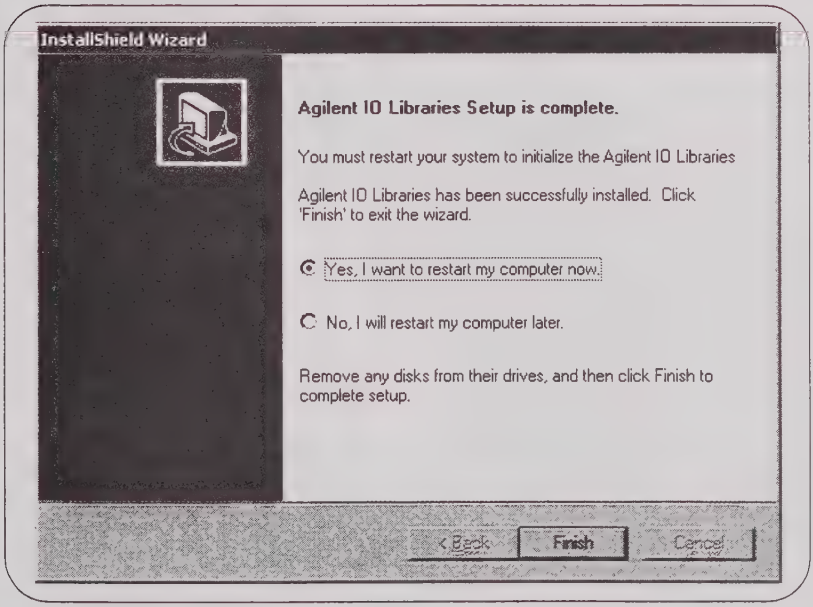
9. For the Full SICL and Agilent VISA Installation and the Full SICL Installation ONLY, the **Question** screen for E8491 support appears on Windows 95 and Windows NT. (This support is installed by default on Windows 98 and Windows 2000.) Click Yes to install Agilent E8491 IEEE to VXI support, click No to not install it.

10. Move through the screens (as applicable to the option selected) until you get to the **IO Libraries Configuration** screen. Then, select the type of configuration you want performed (automatic, manual, or none) and click Next > to start the installation.

11. When installation is complete, the **Installation Complete** screen appears. Note that you must re-start your computer to initialize the IO Libraries. Select the Yes or No option, remove any disks from their drives, and click `Finish` to complete the installation.

NOTE

A different screen will appear if it is not necessary to restart the computer. Even if you are not prompted to restart the computer, if you experience difficulty after installing the IO Libraries, restart the computer to see if this solves the problem.

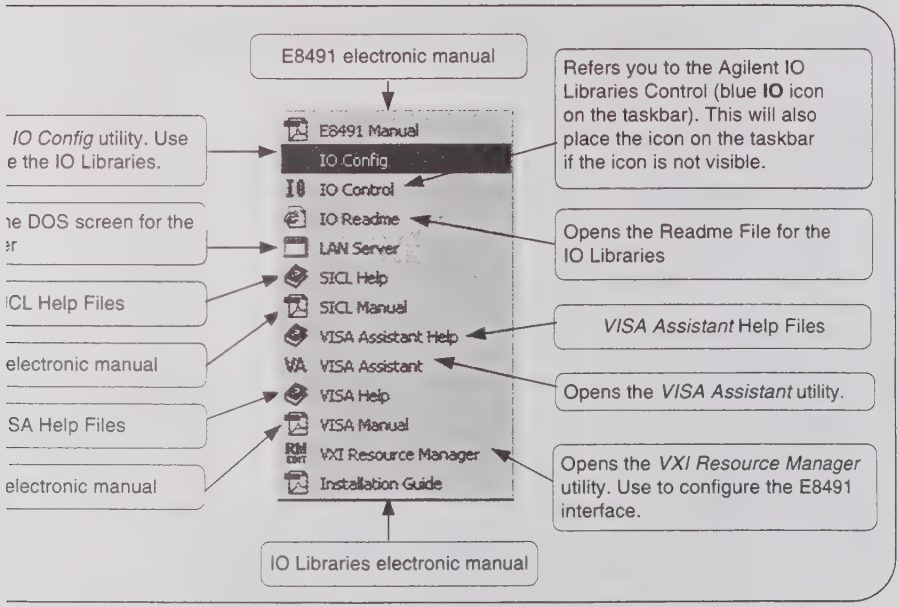

InstallShield Wizard
Agilent IO Libraries Setup is complete.
You must restart your system to initialize the Agilent IO Libraries
Agilent IO Libraries has been successfully installed. Click 'Finish' to exit the wizard.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

What Was Created During Installation?

Depending on the installation option you selected, SICL and/or VISA were installed and several program icons were created. In addition, an Agilent IO Libraries Control was created.

ps

During installation, the Agilent IO Libraries program group was created. To access this group, click `Start | Programs | Agilent IO Libraries` to display the following icons. Three utilities were installed you can use with the IO Libraries: IO Config, VISA Assistant, and VXI Resource Manager. See *Chapter 3 - Configuring IO Libraries* for information on using these utilities.

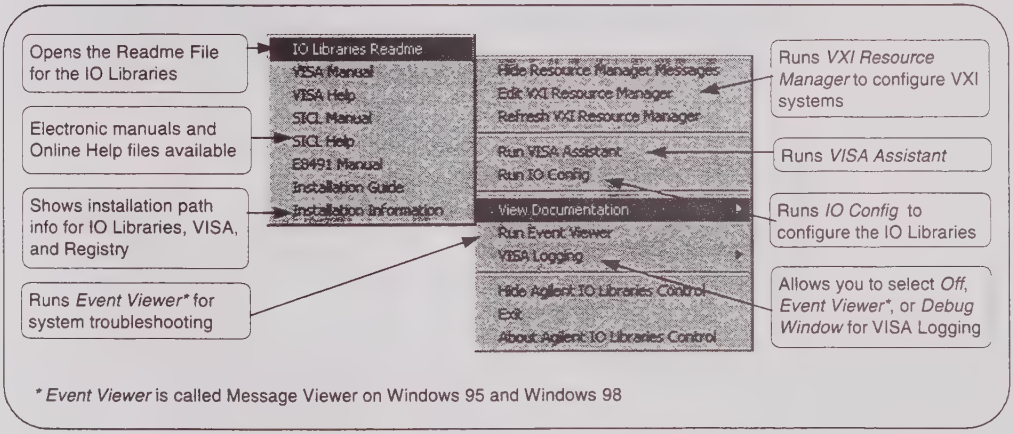

E8491 electronic manual
Refers you to the Agilent IO Libraries Control (blue **IO** icon on the taskbar). This will also place the icon on the taskbar if the icon is not visible.
IO Config utility. Use e the IO Libraries.
E8491 Manual
IO Config
IO Control
IO Readme
LAN Server
SICL Help
SICL Manual
VISA Assistant Help
VISA Assistant
VISA Help
VISA Manual
VXI Resource Manager
Installation Guide
ıe DOS screen for the ːr
Opens the Readme File for the IO Libraries
ICL Help Files
VISA Assistant Help Files
electronic manual
Opens the *VISA Assistant* utility.
SA Help Files
electronic manual
Opens the *VXI Resource Manager* utility. Use to configure the E8491 interface.
IO Libraries electronic manual

Agilent IO Libraries Control Icon

In addition to the IO Libraries icons, an Agilent IO Libraries Control icon was created. This icon is located on the right-hand side of the taskbar and is shown as a blue **IO** symbol. This figure shows the functions of the Agilent IO Libraries Control.

NOTE

If the IO Libraries Control icon is not visible, you can display the icon by clicking `Start | Programs | Agilent IO Libraries | IO Control`.

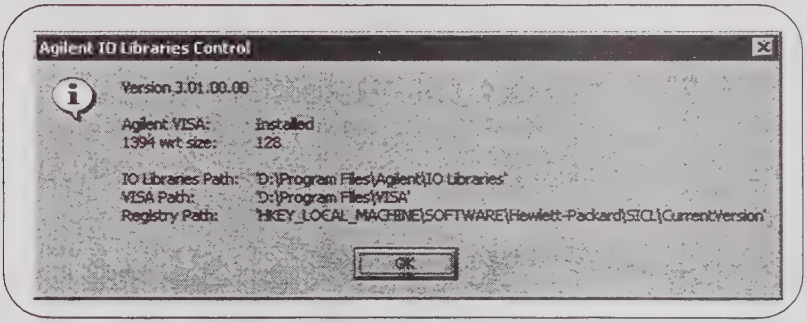

Opens the Readme File for the IO Libraries
Electronic manuals and Online Help files available
Shows installation path info for IO Libraries, VISA, and Registry
Runs *Event Viewer** for system troubleshooting
IO Libraries Readme
VISA Manual
VISA Help
SICL Manual
SICL Help
E8491 Manual
Installation Guide
Installation Information
Hide Resource Manager Messages
Edit VXI Resource Manager
Refresh VXI Resource Manager
Run VISA Assistant
Run IO Config
View Documentation
Run Event Viewer
VISA Logging
Hide Agilent IO Libraries Control
Exit
About Agilent IO Libraries Control
Runs *VXI Resource Manager* to configure VXI systems
Runs *VISA Assistant*
Runs *IO Config* to configure the IO Libraries
Allows you to select *Off*, *Event Viewer**, or *Debug Window* for VISA Logging
* *Event Viewer* is called Message Viewer on Windows 95 and Windows 98

The IO Libraries Control allows you to run VISA Assistant, IO Config, and Message/Event Viewer. It also allows you to select different modes of operation for VISA Logging. See *Chapter 3 - Configuring the IO Libraries* for details on using IO Config and VISA Assistant.

NOTE

Adobe Acrobat Reader version 3.0 or greater is required to view manuals available from the Agilent IO Libraries Control. (Online Help files do not require Acrobat Reader.) If Adobe Acrobat Reader is not present, no error message appears, but manuals will not be displayed.

Clicking `View Documentation | Installation Information` displays the IO Libraries, VISA, and Registry installation paths. This is primarily useful for troubleshooting installation problems. See the following figure for a typical display.



Where to go Next

You have now completed installation of the Agilent IO Libraries. Go to *Chapter 3 - Configuring the IO Libraries* for guidelines to configure the Agilent IO Libraries for your PC configuration.

Upgrading Existing IO Libraries

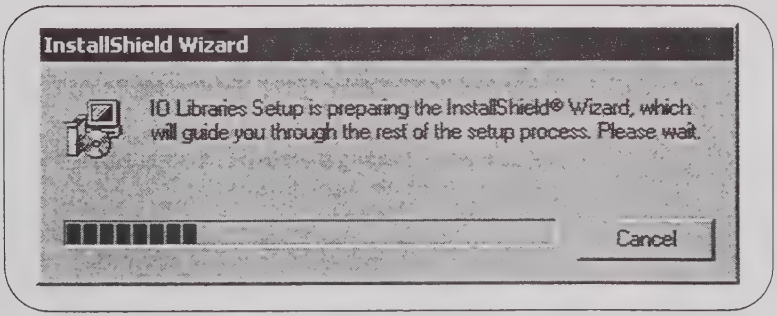
Use these steps to upgrade existing IO Libraries on your PC.

The steps in this section assume version H.01.03 or earlier of the IO Libraries is installed on your PC and you are installing version J.01.00 or later of the IO Libraries.

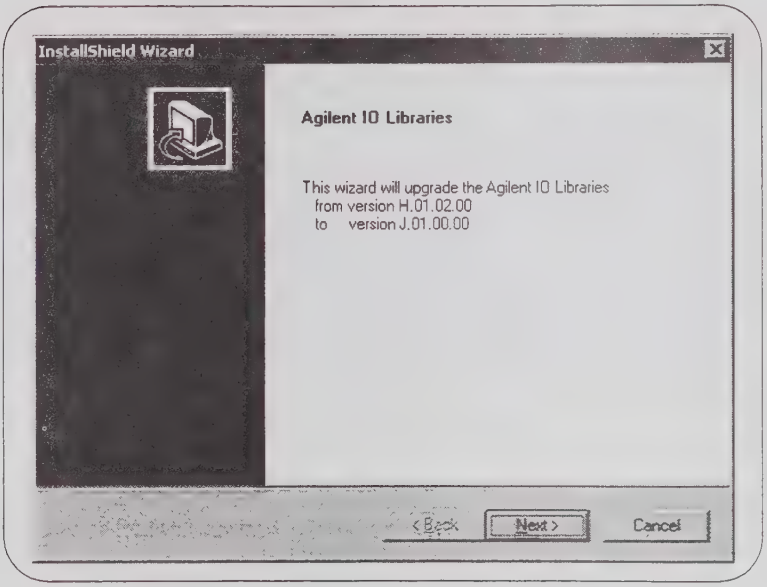
- If no version of the IO Libraries is installed on your PC and you want to install a new version, see *Installing New IO Libraries*.
- If you want to modify, repair, or remove **the same version** of an existing IO Library, see *Maintaining IO Libraries*.

Steps to Upgrade the IO Libraries

1. Turn the PC ON and close all open applications.
2. As required, install application software such as C/C++, VEE, etc. on your PC.
3. Insert the *IO Libraries for Instrument Control* CD into the CD-ROM drive and wait a few seconds for the application to run. The installer should automatically start when the CD is inserted. If not, select `Start | Run` and type *<drive>*`:setup.exe` where *drive* is your CD-ROM drive letter.
4. The InstallShield® Wizard appears to begin the IO Libraries installation.


InstallShield Wizard
IO Libraries Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.
Cancel

5. An **Upgrade** screen appears that shows the current version installed and the new version that will be installed.



6. Click Next > to go to the **License Agreement** screen and then click Yes to accept the license terms and to display the **Readme Information** screen.

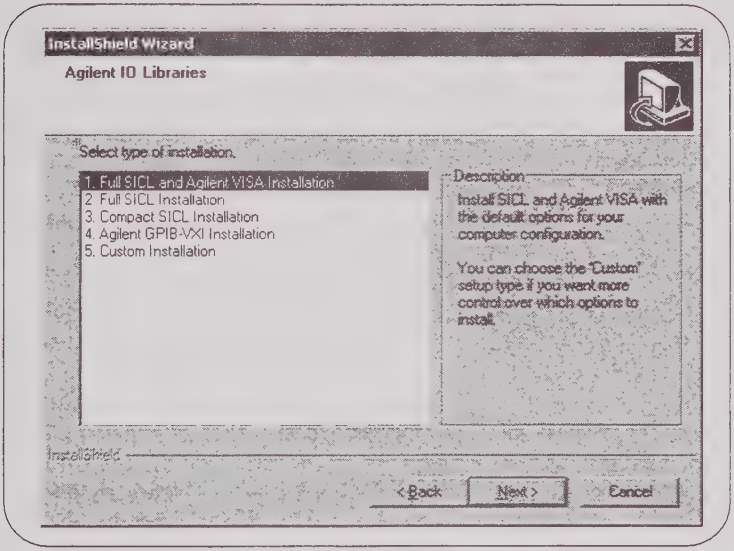
NOTE

The **Readme** screen contains important information on the IO Libraries. We suggest you read this information before continuing with IO Libraries upgrade.

NOTE

If you are installing version J.01.00 or greater of the Agilent IO Libraries, steps 7 through 9 are skipped.

7. After reading the ReadMe information, click Next > to display the **Select Type of Installation** screen.


InstallShield Wizard
Agilent IO Libraries
Select type of installation.
1. Full SICL and Agilent VISA Installation
2. Full SICL Installation
3. Compact SICL Installation
4. Agilent GPIB-VXI Installation
5. Custom Installation
Description
Install SICL and Agilent VISA with the default options for your computer configuration.
You can choose the 'Custom' setup type if you want more control over which options to install.
InstallShield
< Back
Next >
Cancel

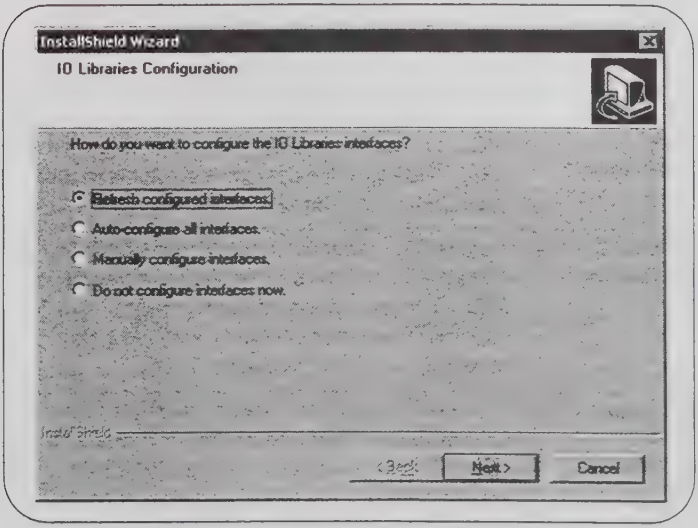
8. Use this table for guidelines to select the type of installation for your application. Then, click Next > to install the option.

Option	Description
1. Full SICL and Agilent VISA Installation	Installs SICL and Agilent VISA with the default options for your computer configuration. This option allows development and runtime capabilities using SICL and Agilent VISA. The option also allows you to select Agilent E8491 IEEE 1394 to VXI support. If another vendor's VISA is installed, installing this option will overwrite the other vendor's VISA.
2. Full SICL Installation	Installs SICL (but not Agilent VISA) with the default options for your computer configuration. This option allows development and runtime capabilities using SICL. The option also allows you to select Agilent E8491 IEEE 1394 to VXI support. If another vendor's VISA is installed, installing this option will not overwrite the other vendor's VISA.
3. Compact SICL Installation	Installs SICL (but not Agilent VISA) with the default options for your computer configuration. This option allows runtime capabilities ONLY (no development capabilities) using SICL for Serial (RS-232) and LAN client interfaces. If another vendor's VISA is installed, installing this option will not overwrite the other vendor's VISA.

Option	Description
4. Agilent VXI-GPIB Installation	Use this option if your system includes a Hewlett-Packard or Agilent VXI Command Module (such as an E1406, etc.) and another vendor's VISA. This option provides VXI-GPIB support for VXI Command Modules on another vendor's VISA. SICL and Agilent VISA are NOT installed.
5. Custom Installation	Allows you to install individually selected components of the IO Libraries, including SICL, including SICL, VISA, E8491, I-SCPI, and GPIB-VXI Support components. I-SCPI is supplied for backward compatibility but is NOT recommended for new applications.

9. For the Full SICL and Agilent VISA Installation and the Full SICL Installation ONLY, the **Question** screen for E8491 support appears on Windows 95 and Windows NT. (This support is installed by default on Windows 98 and Windows 2000.) Click `Yes` to install Agilent E8491 IEEE to VXI support, click `No` to not install it.

10. Move through the screens (as applicable to the option selected) until you get to the **IO Libraries Configuration** screen. Then, select the type of configuration you want performed (refresh, automatic, manual, or do not configure) and click `Next >` to start the installation.



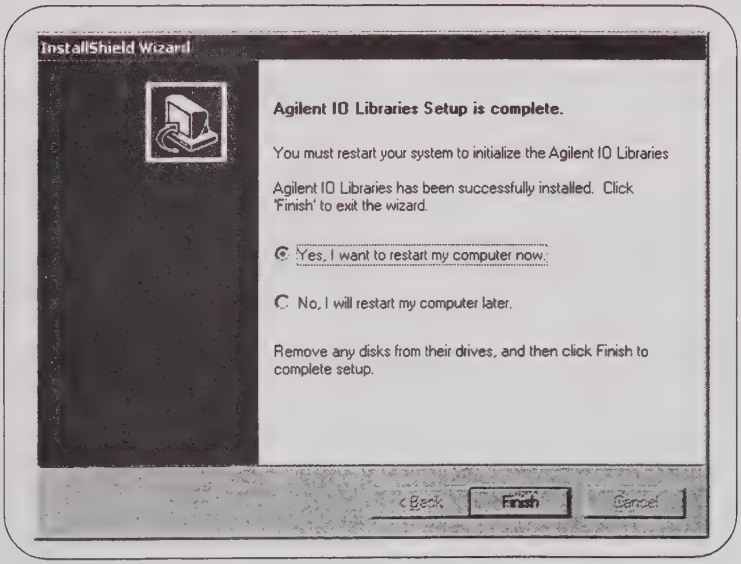
NOTE

The **Refresh Configured Interfaces** option will not search for any unconfigured interfaces. This option will only refresh interfaces that are already configured.

11. When installation is complete, the **Installation Complete** screen appears. Note that you must re-start your computer to initialize the IO Libraries. Select the Yes or No option, remove any disks from their drives, and click `Finish` to complete the installation.

NOTE

A different screen will appear if it is not necessary to restart the computer. Even if you are not prompted to restart the computer, if you experience difficulty after installing the IO Libraries, restart the computer to see if this solves the problem.

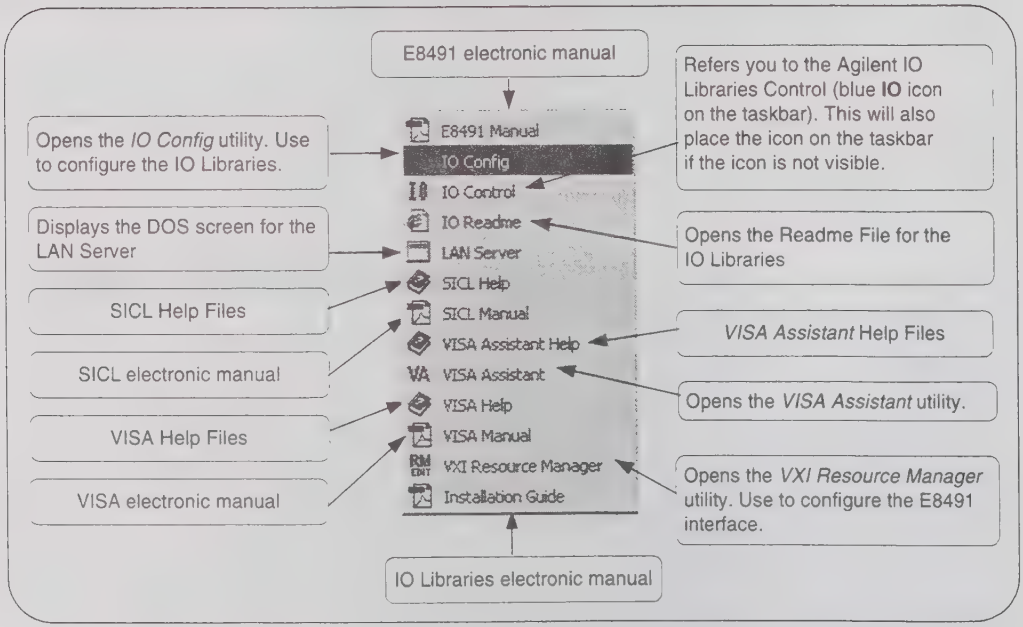

InstallShield Wizard
Agilent IO Libraries Setup is complete.
You must restart your system to initialize the Agilent IO Libraries
Agilent IO Libraries has been successfully installed. Click 'Finish' to exit the wizard.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

What Was Created During Installation?

Depending on the installation option you selected, SICL and/or VISA were installed and several program icons were created. In addition, an Agilent IO Libraries Control was created.

Program Groups Created

During installation, the Agilent IO Libraries program group was created. To access this group, click `Start | Programs | Agilent IO Libraries` to display the following icons. Three utilities are installed you can use with the IO Libraries: IO Config, VISA Assistant, and VXI Resource Manager. See *Chapter 3 - Configuring IO Libraries* for information on using these utilities.

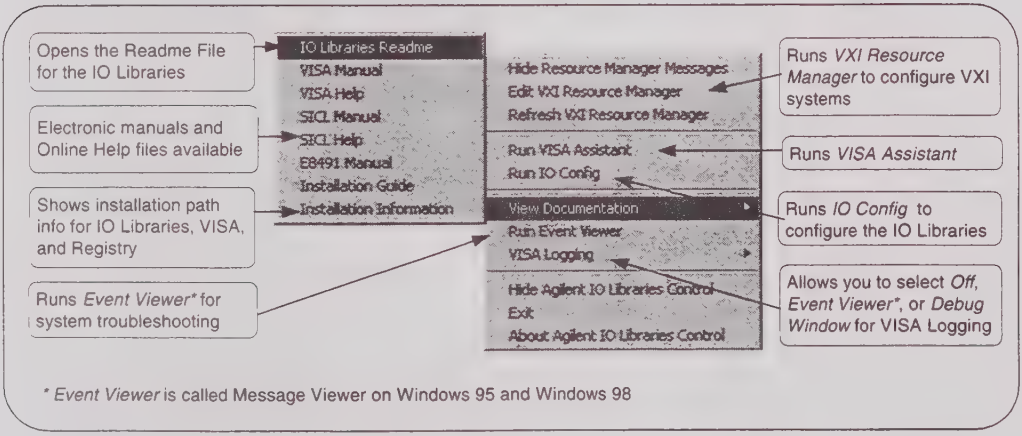

E8491 electronic manual
Refers you to the Agilent IO Libraries Control (blue **IO** icon on the taskbar). This will also place the icon on the taskbar if the icon is not visible.
Opens the *IO Config* utility. Use to configure the IO Libraries.
E8491 Manual
IO Config
IO Control
IO Readme
LAN Server
SICL Help
SICL Manual
VISA Assistant Help
VISA Assistant
VISA Help
VISA Manual
VXI Resource Manager
Installation Guide
Displays the DOS screen for the LAN Server
Opens the Readme File for the IO Libraries
SICL Help Files
SICL electronic manual
VISA Assistant Help Files
Opens the *VISA Assistant* utility.
VISA Help Files
VISA electronic manual
Opens the *VXI Resource Manager* utility. Use to configure the E8491 interface.
IO Libraries electronic manual

Agilent IO Libraries Control Icon

In addition to the IO Libraries icons, an Agilent IO Libraries Control icon was created. This icon is located on the right-hand side of the taskbar and is shown as a blue **IO** symbol. The followng figure shows the functions of the Agilent IO Libraries Control.

NOTE

If the IO Libraries Control icon is not visible, you can display the icon by clicking `Start | Programs | Agilent IO Libraries | IO Control`.

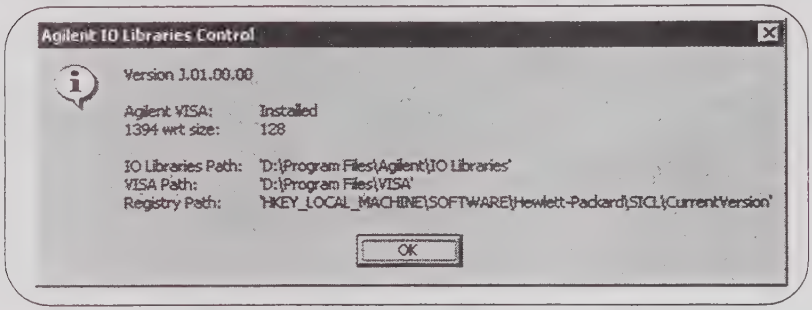

Opens the Readme File for the IO Libraries
Electronic manuals and Online Help files available
Shows installation path info for IO Libraries, VISA, and Registry
Runs *Event Viewer** for system troubleshooting
IO Libraries Readme
VISA Manual
VISA Help
SICL Manual
SICL Help
E8491 Manual
Installation Guide
Installation Information
Hide Resource Manager Messages
Edit VXI Resource Manager
Refresh VXI Resource Manager
Run VISA Assistant
Run IO Config
View Documentation
Run Event Viewer
VISA Logging
Hide Agilent IO Libraries Control
Exit
About Agilent IO Libraries Control
Runs *VXI Resource Manager* to configure VXI systems
Runs *VISA Assistant*
Runs *IO Config* to configure the IO Libraries
Allows you to select *Off*, *Event Viewer**, or *Debug Window* for VISA Logging
* *Event Viewer* is called Message Viewer on Windows 95 and Windows 98

The IO Libraries Control allows you to run VISA Assistant, IO Config, and Message/Event Viewer. It also allows you to select different modes of operation for VISA Logging. See *Chapter 3 - Configuring the IO Libraries* for details on using IO Config and VISA Assistant.

NOTE

Adobe Acrobat Reader version 3.0 or greater is required to view manuals available from the Agilent IO Libraries Control. (Online Help files do not require Acrobat Reader.) If Adobe Acrobat Reader is not present, no error message appears, but manuals will not be displayed.

Clicking `View Documentation | Installation Information` displays the IO Libraries, VISA, and Registry installation paths. See the following figure for a typical display.



Where to go Next

You have now completed installation of the new Agilent IO Libraries. Go to *Chapter 3 - Configuring the IO Libraries* for guidelines to configure the IO Libraries for your PC configuration.

Maintaining Existing IO Libraries

This section gives guidelines to modify, repair, or remove **the same version** of the IO Libraries (version J.01.00 or later) currently installed on your PC.

- To modify the same version of an existing IO Library, see "Steps to Modify IO Libraries".
- To repair the same version of an existing IO Library, see "Steps to Repair IO Libraries".
- To remove the same version of an existing IO Library, see "Steps to Remove IO Libraries".

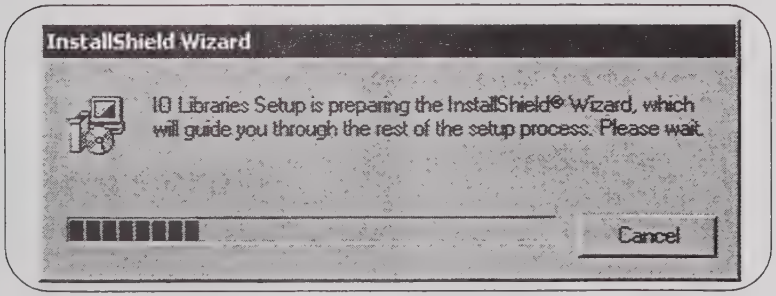
Steps to Modify the IO Libraries

1. Turn the PC ON and close all open applications.
2. Insert the *IO Libraries for Instrument Control* CD into the CD-ROM drive and wait a few seconds for the application to run.

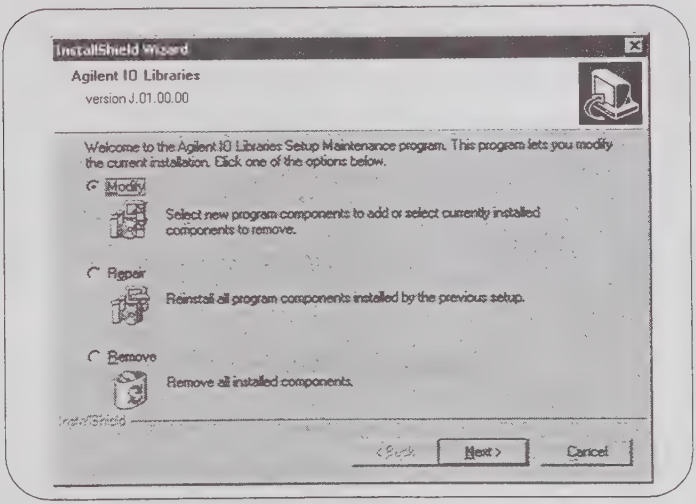
NOTE

The installer should automatically start when the CD is inserted. If not, select `Start | Run` and type *<drive>:*`setup.exe` where *drive* is your CD-ROM drive letter.

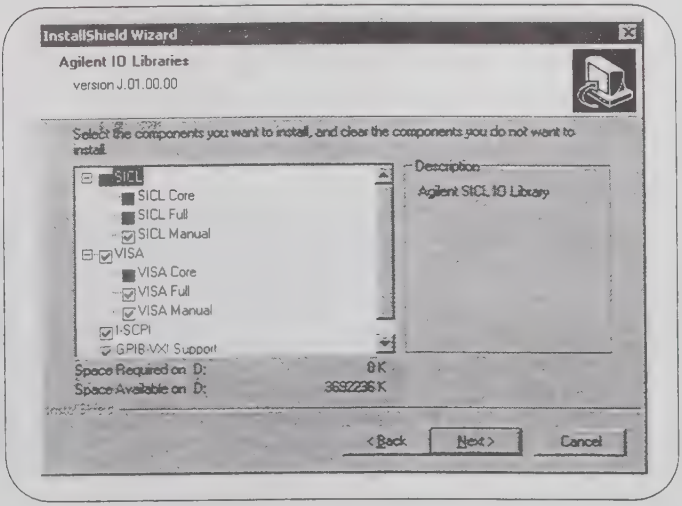
3. The InstallShield® Wizard appears to begin the IO Libraries modification process.


InstallShield Wizard
IO Libraries Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.
Cancel

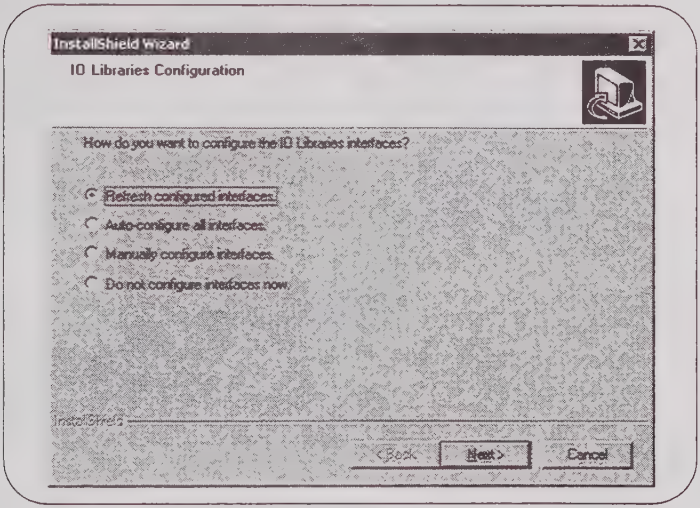
4. After a few seconds, the **Setup Maintenance** screen appears. From this screen, select `Modify` and then click `Next >` to modify the current IO Libraries installation.


InstallShield Wizard
Agilent IO Libraries
version J.01.00.00
Welcome to the Agilent IO Libraries Setup Maintenance program. This program lets you modify the current installation. Click one of the options below.
Modify
Select new program components to add or select currently installed components to remove.
Repair
Reinstall all program components installed by the previous setup.
Remove
Remove all installed components.
InstallShield
< Back
Next >
Cancel

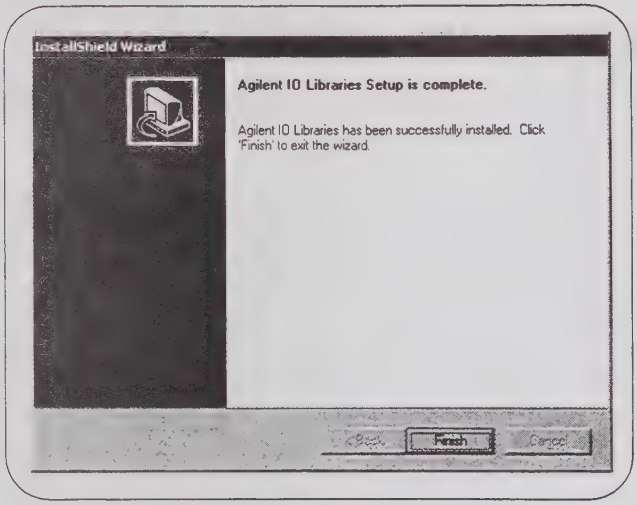
5. When the **Tree View** screen appears, select the components you want to install and clear the components you do not want to install.Then, click `Next >` to begin the (modified) installation.



6. After the modified setup is installed, the **IO Libraries Configuration** screen appears. Select an option and then click `Next >` to complete the modification process .



- If you select "Refresh configured interfaces" or "Auto-configure all interfaces", all applicable interfaces are refreshed or configured.
- If you select "Manually configure interfaces", the IO Config utility appears from which you can manually configure interfaces. See *Chapter 3 - Configuring the IO Libraries* for information on IO Config.
- If you select "Do not configure interfaces now", the **Setup Complete** screen appears that reminds you to run the IO Config utility. See *Chapter 3 - Configuring the IO Libraries* for information on IO Config.


InstallShield Wizard
Agilent IO Libraries Setup is complete.
Agilent IO Libraries has been successfully installed. Click 'Finish' to exit the wizard.
< Back
Finish
Cancel

7. For any option selected, when the **Setup Complete** screen appears, click `Finish` to complete the process and then remove the *IO Libraries for Instrument Control* CD.

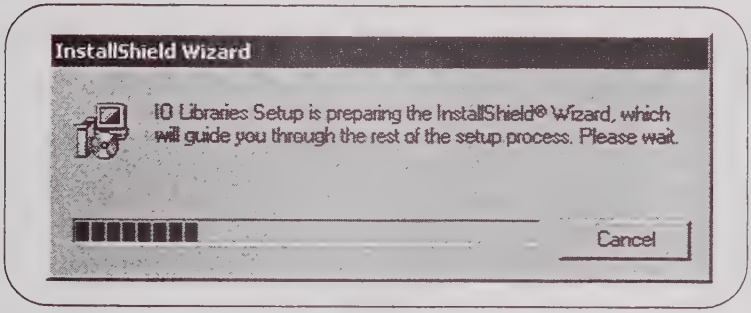
Steps to Repair the IO Libraries

1. Turn the PC ON and close all open applications.
2. Insert the *IO Libraries for Instrument Control* CD into the CD-ROM drive and wait a few seconds for the application to run.

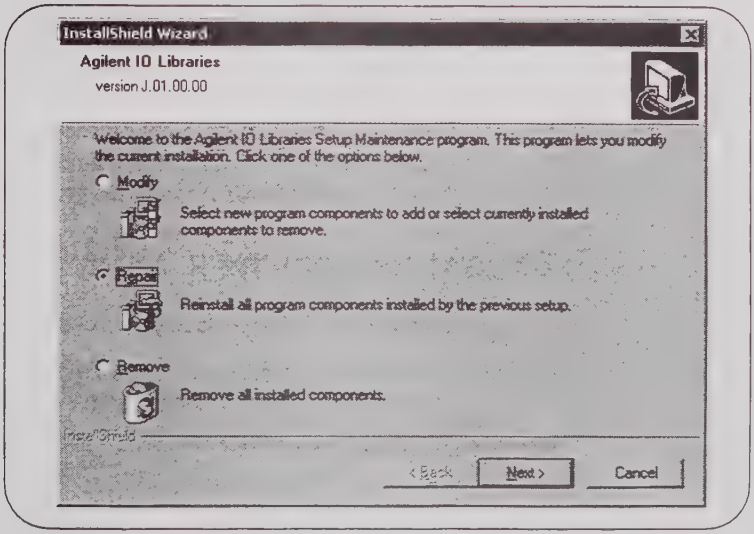
NOTE

The installer should automatically start when the CD is inserted. If not, select `Start | Run` and type *<drive>*`:setup.exe` where *drive* is your CD-ROM drive letter.

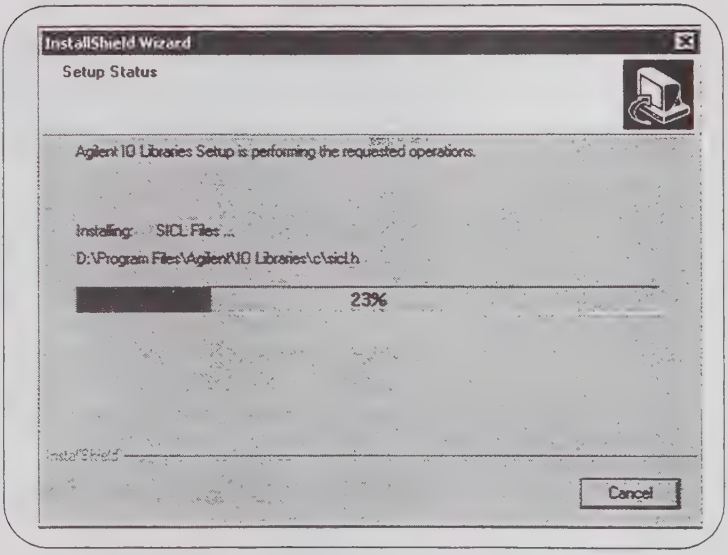
3. The InstallShield® Wizard appears to begin the IO Libraries modification process.


InstallShield Wizard
IO Libraries Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.
Cancel

4. After a few seconds, the **IO Libraries Setup Maintenance** screen appears. From this screen, select `Repair` and then click `Next >` to re-install the current IO Libraries components.


InstallShield Wizard
Agilent IO Libraries
version J.01.00.00
Welcome to the Agilent IO Libraries Setup Maintenance program. This program lets you modify the current installation. Click one of the options below.
Modify
Select new program components to add or select currently installed components to remove.
Repair
Reinstall all program components installed by the previous setup.
Remove
Remove all installed components.
InstallShield
< Back
Next >
Cancel

5. The **Setup Status** screen appears, and the existing IO Library components are re-installed.



6. When re-installation is complete, the **Setup Complete** screen appears. Click `Finish` to complete the process and then remove the *IO Libraries for Instrument Control* CD.

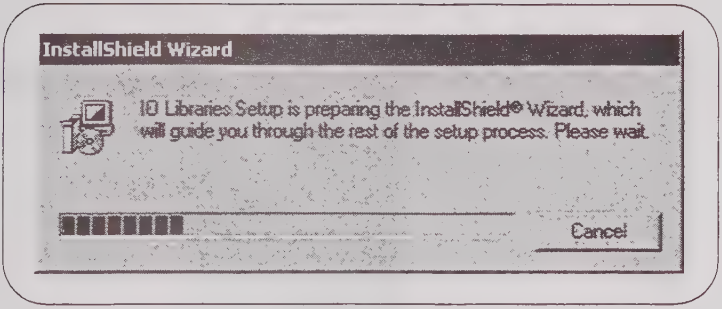
Steps to Remove the IO Libraries

1. Turn the PC ON and close all open applications.
2. Insert the *IO Libraries for Instrument Control* CD into the CD-ROM drive and wait a few seconds for the application to run.

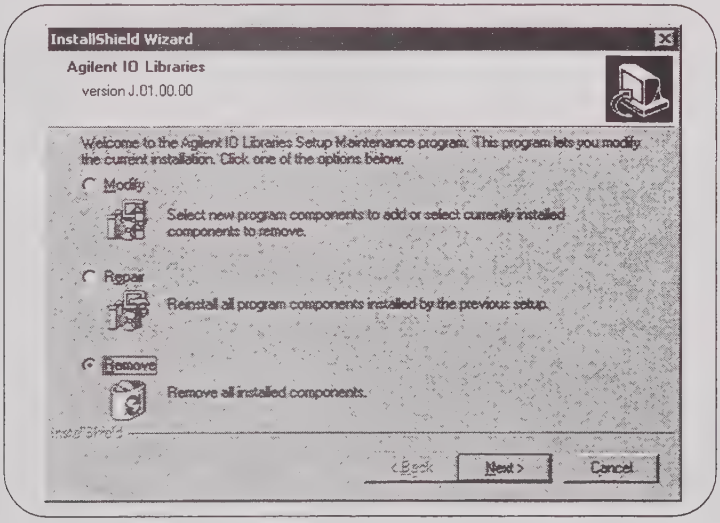
NOTE

The installer should automatically start when the CD is inserted. If not, select `Start | Run` and type *<drive>*`:setup.exe` where *drive* is your CD-ROM drive letter.

3. The InstallShield® Wizard appears to begin the IO Libraries modification process.

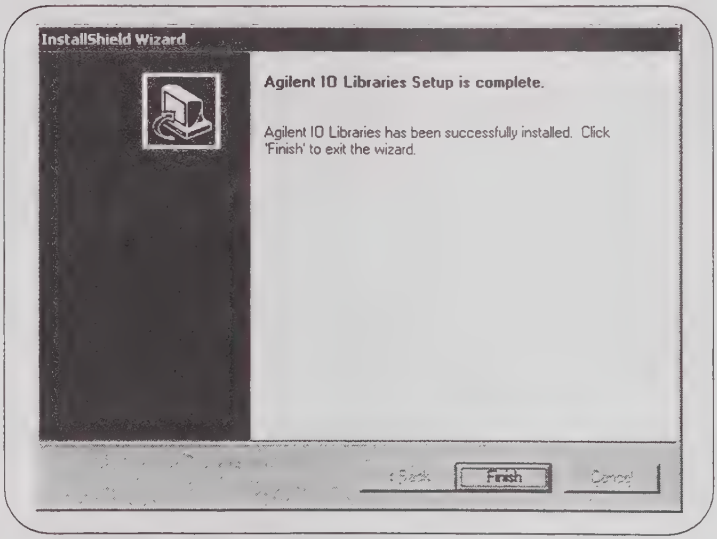

InstallShield Wizard
IO Libraries Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.
Cancel

4. After a few seconds, the **IO Libraries Setup Maintenance** screen appears. From this screen, select `Remove` and then click `Next >` to repair the current IO Libraries installation.


InstallShield Wizard
Agilent IO Libraries
version J.01.00.00
Welcome to the Agilent IO Libraries Setup Maintenance program. This program lets you modify the current installation. Click one of the options below.
Modify
Select new program components to add or select currently installed components to remove.
Repair
Reinstall all program components installed by the previous setup.
Remove
Remove all installed components.
InstallShield
< Back
Next >
Cancel

5. The **Confirm Delete** screen appears. Click `Yes` to delete all currently installed IO Libraries components.

6. When component removal is complete, the **Setup Complete** screen appears. Click `Finish` to complete the process and then remove the *IO Libraries for Instrument Control* CD.


InstallShield Wizard
Agilent IO Libraries Setup is complete.
Agilent IO Libraries has been successfully installed. Click 'Finish' to exit the wizard.
< Back
Finish
Cancel

3

Configuring the IO Libraries

Configuring the IO Libraries

This chapter gives guidelines to use IO utilities for configuring the Agilent IO Libraries. The chapter contents are:

- Getting Started
- Using IO Config
- Using VISA Assistant
- Using the VXI Resource Manager
- Using the LAN Server

Getting Started

This chapter gives guidelines to configure the Agilent IO Libraries on Windows 95, Windows 98, Windows NT, or Windows 2000.

IO Config Utilities Available

Depending on the hardware interfaces in your system, you can use one or more of these IO utilities to configure your system:

- IO Config
- VISA Assistant
- VXI Resource Manager
- LAN Server

Before You Begin Configuration

If you have Windows 95 and Windows NT environments on your system and you installed the IO Libraries on both environments, you will need perform the configuration procedures in this chapter twice – once on Windows 95 and once on Windows NT.

If you have not yet installed hardware interface card(s) (such as an 82350 GPIB card, etc.) in your computer, you must do so before performing the software configuration procedures in this chapter. To install each interface card, see the installation guide for the card.

Before you can use an interface with SICL or VISA, you **must** first configure the interface with the IO Config utility located in the `Agilent IO Libraries` program folder. IO Config should be used exclusively to configure all interfaces used with SICL and VISA.

How do I get Started?

Click `Start | Programs | Agilent IO Libraries` to display the IO configuration utilities. Or, you can use the *Agilent IO Libraries Control* (displayed as a blue **IO** icon on the Windows taskbar) to get started configuring the IO Libraries and to display online manuals and help. See *Chapter 2 - Installing IO Libraries* for a description of the Agilent IO Libraries Control functions.

Using IO Config

This section gives guidelines to use the IO Libraries configuration utility, *IO Config*. You can use IO Config to configure hardware interfaces (such as an 82350A GPIB card, etc.) for use with SICL and VISA on a Windows 95, Windows 98, Windows 2000, or Windows NT environment.

NOTE

IO Config cannot automatically detect a LAN interface. If you want to use a LAN interface with 32-bit VISA and/or SICL, see the "Using the LAN Server" to configure LAN interfaces.

If any VISA or SICL applications are running when changes are made using IO Config, these changes will not take effect until all currently executing applications have completed.

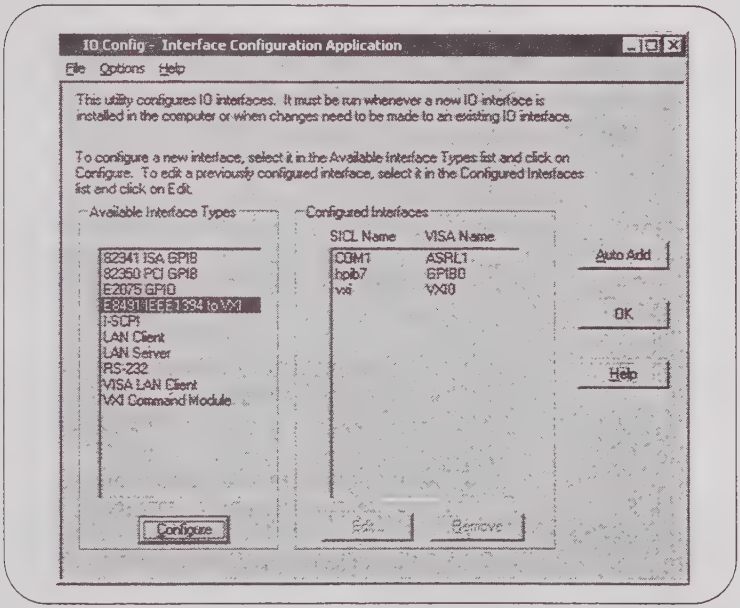
What is IO Config?

The IO Config utility is used by the Agilent IO Libraries to configure instrument I/O hardware interfaces. An interface must be configured with IO Config before the interface can be used with the IO Libraries.

IO Config is an interactive program that searches your system for installed interfaces (except LAN) that VISA and SICL support. You select the interface(s) you want to configure and IO Config selects default parameters required to configure the interface(s).

You can configure all available interfaces with IO Config for use with the IO Libraries. With IO Config, you can also add, edit, or remove configuration entries for the interface(s) you specify.

The IO Libraries use an **Interface Name** or **Logical Unit Number** to identify an interface. This information is passed in the parameter string of the `viOpen` function call in a VISA program or in the `iopen` function call in a SICL program. IO Config assigns an Interface Name and Logical Unit Number to the interface hardware, as well as other necessary configuration values for an interface when the interface is configured. A typical main panel display for IO Config follows.


IO Config - Interface Configuration Application
File Options Help
This utility configures IO interfaces. It must be run whenever a new IO interface is installed in the computer or when changes need to be made to an existing IO interface.
To configure a new interface, select it in the Available Interface Types list and click on Configure. To edit a previously configured interface, select it in the Configured Interfaces list and click on Edit.
Available Interface Types
82341 ISA GPIB
82350 PCI GPIB
E2075 GPIO
E8491 IEEE1394 to VXI
I-SCPI
LAN Client
LAN Server
RS-232
VISA LAN Client
VXI Command Module
Configure
Configured Interfaces
SICL Name
VISA Name
COM1
ASRL1
hpib7
GPIB0
vxi
VXI0
Edit...
Remove
Auto Add
OK
Help

IO Config Requirements

You can run IO Config at any time. However, you must first install an interface card in your system before you can configure the interface. IO Config will verify that an interface card is installed before a configuration entry will be added for the card.

If any VISA or SICL applications are running when changes are made using IO Config, these changes will not take effect until all currently executing applications have completed.

You must have system administrator privileges on Windows NT to run IO Config. You may also need to reboot the computer if you add or modify interfaces with IO Config to load or update driver files for specific interfaces in the Windows kernel. IO Config will inform you if it is necessary to reboot your computer.

When you configure VISA with IO Config, the default configuration is to identify all VISA devices at application runtime. If you experience slow performance when running VISA applications, you may want to edit the VISA configuration to identify devices at configuration time (not at runtime). See the *VISA User's Guide* to edit the VISA configuration.

Running IO Config

1. If IO Config is not open, run it by either double-clicking the `IO Config` icon in the `IO Libraries` program group or by clicking the Agilent IO Libraries Control icon and selecting `Run IO Config`.

2. Configurable hardware options (such as the computer interrupt line to use) plus selected VISA and SICL configuration information is displayed for each selected interface.

3. If you have questions about using IO Config for a specific interface, click the `Help` button on the IO Config dialog box.

4. In most cases, you can use the automatic defaults. However, if you need to change a value, click the arrows next to the value's field. If there are no arrows, click the field and type in the value you want.

5. Note the name of the interface (such as `hpib7`, etc.) and the logical unit number of the interface for use in SICL applications, and the device address for use in VISA applications. (You can run IO Config at any time to check or change interface configuration settings.)

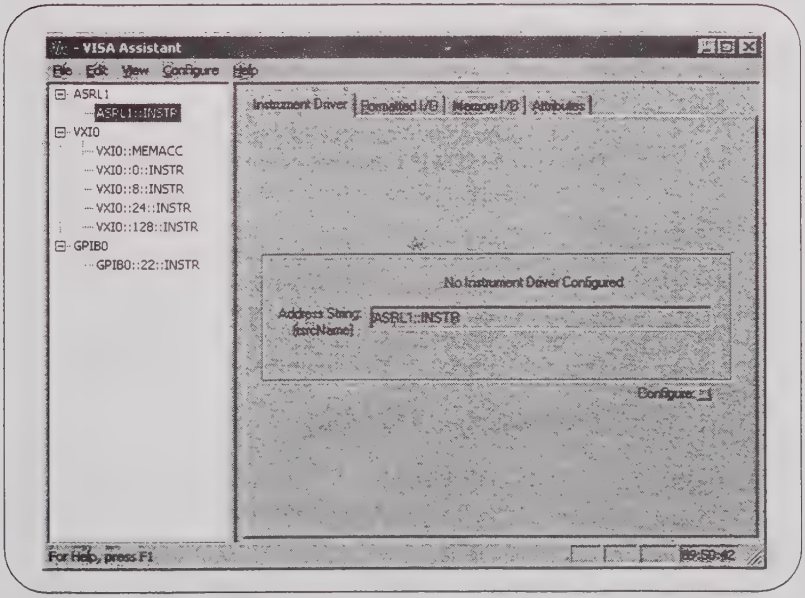
6. When you have finished configuring interfaces, click `OK` to store the changes.

Using VISA Assistant

VISA Assistant is an application program that uses the IO Libraries to communicate with and to control VXI, GPIB, and serial Instruments.

VISA Assistant can automatically detect and assign VXI*plug&play* instrument drivers to instruments. VISA Assistant can also be used to send and receive strings to instruments which support formatted I/O. For other instruments, VISA Assistant allows you to read and write memory areas. VISA Assistant also describes attributes that are associated with an instrument.

To run VISA Assistant, either click `Start | Programs | Agilent IO Libraries | VISA Assistant` or click the Agilent IO Libraries Control and then click `Run VISA Assistant`. A typical display showing the system Instrument View follows. For information on using VISA Assistant, click the Help menu button.



Using the VXI Resource Manager

If your system includes an E8491 IEEE-1394 PC Link to VXI interface, you can view the output of the *VXI Resource Manager* to determine if your system is properly configured. The easiest way to view this output is to use the IO Config utility to run the VXI Resource Manager.

The VXI Resource Manager initializes and prepares the VXI system for use. The VXI Resource Manager will run when:

- VXI mainframe power is applied or cycled
- The E8491 Reset button is pressed
- Activated from the IO Config utility
- Activated from Agilent IO Libraries Control icon

In VXI systems with multiple E8491s, individual mainframes can be turned off without affecting other mainframes in the system. When a mainframe is turned on, the Resource Manager reconfigures the mainframe.

NOTE

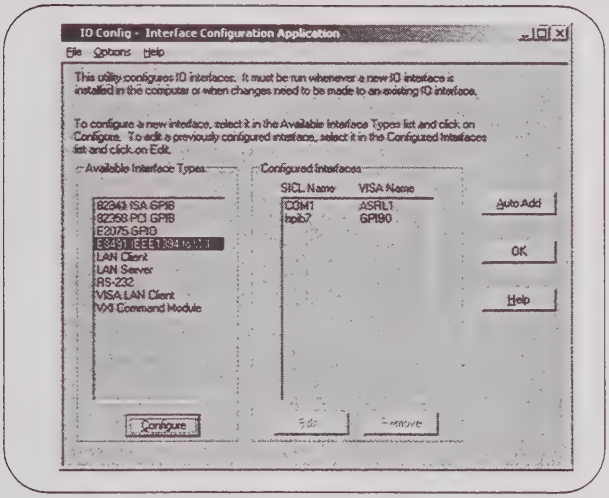
The Agilent IO Libraries Control utility must be running to enable the VXI Resource Manager to run. The VXI Resource Manager is installed when the E8491 interface is configured using IO Config. Click the blue **IO** icon on the taskbar to access the IO Libraries Control utility.

If the IO Libraries Control icon is not visible, you can display the icon by clicking `Start | Programs | Agilent IO Libraries | IO Control`. The displays in this section are from Windows 2000. Displays for Windows 95, Windows 98, or Windows NT may be slightly different.

Running IO Config

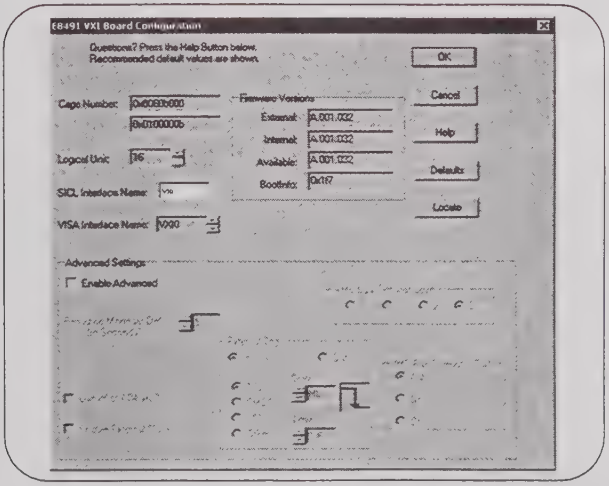
1. Click `Start | Programs | Agilent IO Libraries | IO Config` OR click the Agilent IO Libraries Control icon and select `Run IO Config` to display the IO Config main panel.

2. Highlight the E8491 IEEE 1394 to VXI entry. (See the following figure.) Then, click `Configure`.

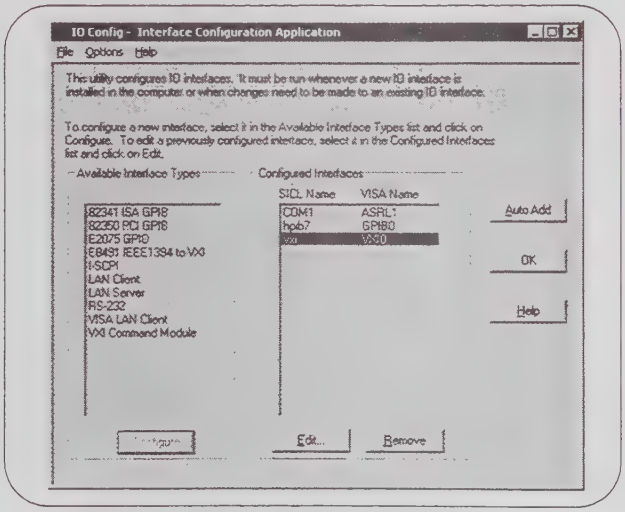

IO Config - Interface Configuration Application
File Options Help
This utility configures IO interfaces. It must be run whenever a new IO interface is installed in the computer or when changes need to be made to an existing IO interface.
To configure a new interface, select it in the Available Interface Types list and click on Configure. To edit a previously configured interface, select it in the Configured Interfaces list and click on Edit.
Available Interface Types
82340 ISA GPIB
82350 PCI GPIB
E2075 GPIB
E8491 IEEE 1394 to VXI
LAN Client
LAN Server
RS-232
VISA LAN Client
VXI Command Module
Configure
Configured Interfaces
SICL Name
VISA Name
COM1
ASRL1
hpib7
GPIB0
Auto Add
OK
Help

Configuring the E8491

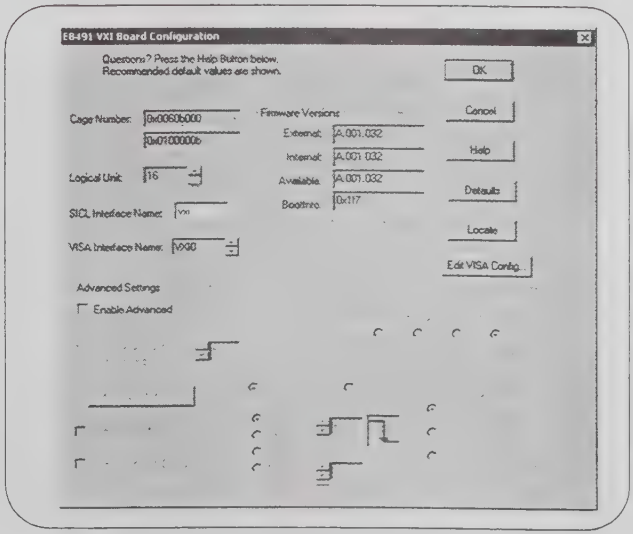
1. On the **E8491 VXI Board Configuration** screen, change the settings for your system as required. When complete, click OK to re-display the main screen.



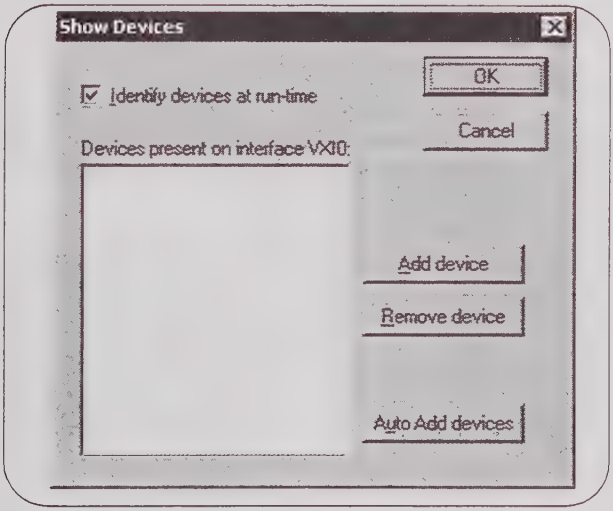
2. On the main screen, highlight the `vxi` entry and then click `Edit` to re-display the **E8491 VXI Board Configuration** screen.


IO Config - Interface Configuration Application
File Options Help
This utility configures IO interfaces. It must be run whenever a new IO interface is installed in the computer or when changes need to be made to an existing IO interface.
To configure a new interface, select it in the Available Interface Types list and click on Configure. To edit a previously configured interface, select it in the Configured Interfaces list and click on Edit.
Available Interface Types
82341 ISA GPIB
82350 PCI GPIB
E2075 GPIO
E8491 IEEE1394 to VXI
HiSCPI
LAN Client
LAN Server
RS-232
VISA LAN Client
VXI Command Module
Configured Interfaces
SICL Name
VISA Name
COM1
ASRL1
hpib7
GPIB0
vxi
VXI0
Auto Add
OK
Help
Edit...
Remove

3. Click `Edit VISA Config...` on this screen to display the `Show Devices` screen.



4. On the `Show Devices` screen, you can add or remove devices manually or auto-add devices. Click `OK` when you have added/deleted devices manually.



NOTE

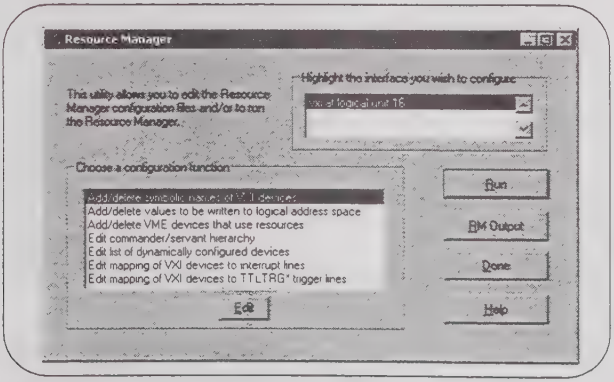
If the `Identify devices at run-time` box is **not** checked, the only devices that VISA can open are the ones listed in the `Devices present on Interface VXIn` box. You can add or remove devices from this box using the `Add device` or `Remove device` buttons, respectively.

If the `Identify devices at run-time` box is checked, at runtime, VISA will will look for all devices so entries are not required in the `Devices present on Interface VXIn` box.

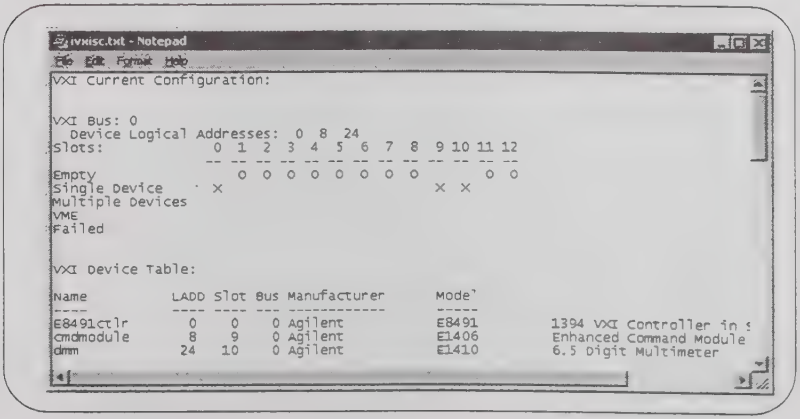
Displaying VXI Resource Manager Output

If an E8491 has previously been installed and configured with IO Config, the VXI Resource Manager will automatically run every time Windows starts. If you change the E8491 configuration in IO Config, the VXI Resource Manager will run automatically (after a 5-second delay) when IO Config is closed.

After the VXI Resource Manager has run, you can view its output. To display the **Resource Manager** screen, click the Agilent IO Libraries Control icon on the taskbar and select `Edit VXI Resource Manager`. See the following figure for a typical display.


Resource Manager
This utility allows you to edit the Resource Manager configuration files and/or to run the Resource Manager.
Highlight the interface you wish to configure:
Choose a configuration function:
Add/delete values to be written to logical address space
Add/delete VME devices that use resources
Edit commander/servant hierarchy
Edit list of dynamically configured devices
Edit mapping of VXI devices to interrupt lines
Edit mapping of VXI devices to TTLTRG* trigger lines
Edit
Run
RM Output
Done
Help

To view the system configuration (the VXI Resource Manager output), click `RM Output`. The following figure shows a part of a typical display.


rvxisc.txt - Notepad
File Edit Format Help
VXI Current Configuration:
VXI Bus: 0
Device Logical Addresses: 0 8 24
Slots: 0 1 2 3 4 5 6 7 8 9 10 11 12
Empty
Single Device
Multiple Devices
VME
Failed
VXI Device Table:
Name LADD Slot Bus Manufacturer Mode
E8491ctlr 0 0 0 Agilent E8491 1394 VXI Controller in s
cmdmodule 8 9 0 Agilent E1406 Enhanced Command Module
dmm 24 10 0 Agilent E1410 6.5 Digit Multimeter

Using the LAN Server

If you configured the LAN server on this system using IO Config, you must now start the LAN server process on this system.

Starting the LAN Server

- To start the LAN server, you can *either* restart (reboot) this system now or manually start the LAN server process on this system.
- To manually start the LAN server process on the system after the LAN server has been configured using IO Config, click the `LAN Server` icon in the `Agilent IO Libraries` program group. The LAN server is now running. You can now minimize the `LAN Server` window so that the `LAN Server` process is listed on the Windows taskbar.

Stopping the LAN Server

To stop the LAN server process from running on the system:

1. Open the `LAN Server` window on the screen and move the cursor into the **`LAN Server`** window.
2. Press `Ctrl+C`. The LAN server process is stopped.

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